AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method for transmitting in an Orthogonal Frequency Division Multiplexing (OFDM) system using a plurality of ~~grouping a plurality of training symbols into a plurality of training symbol groups to perform channel estimation corresponding to at least two transmission antennas, loading individual training symbols contained in the training symbol groups on sub-carriers, and transmitting the training symbols loaded on the sub-carriers in an OFDM (Orthogonal Frequency Division Multiplexing) system for transmitting data using the at least two~~ transmission antennas, the method comprising the steps of:

~~a)~~ creating ~~the~~ a plurality of training symbol groups to perform channel estimation corresponding to the plurality of transmission antennas, by grouping a plurality of training symbols into the plurality of training symbol groups according to the frequency of the timing symbols; and

~~b)~~ transmitting ~~the received~~ each of the training symbol groups only once ~~using one transmission antenna~~ from each of the plurality of ~~among the at least two~~ transmission antennas at predetermined time intervals.

2. (Currently Amended) The method ~~as set forth in~~ of claim 1, wherein the number of the plurality of training symbol groups is equal to the number of the plurality of transmission antennas, and allocated in a non-overlapping pattern, and are simultaneously transmitted ~~in a non-overlapping pattern by~~ through ~~a~~ the number of the plurality of transmission antennas ~~equal to a number of the training symbol groups~~.

3. (Currently Amended) The method ~~as set forth in~~ of claim 2, wherein the plurality of training symbol groups are sequentially allocated to the ~~at least two~~ plurality of transmission antennas.

4. (Currently Amended) The method ~~as set forth in~~ of claim 1, wherein the training symbols are grouped into the plurality of training symbol groups by:

$$x_i^p = \begin{cases} c_i & i=(m-1)N_t + p \\ 0 & otherwise \end{cases}$$

$0 \leq p \leq N_t - 1, \ 1 \leq i \leq N_c N_t$

where x_i^p is a training symbol included in the p[th] training symbol group, N_t is the number of antennas or the number of training symbol groups, c_i is an arbitrary complex of a magnitude $\sqrt{N_t}$, m is an integer lower than N_c, and N_c is number of training symbols allocated to one transmission antenna.

5. (Currently Amended) The method ~~as set forth in~~ of claim 1, wherein each of the plurality of ~~at least two~~ transmission antennas transmits a ~~training symbol allocated only once when transmitting a~~ specific sub-carrier ~~a predetermined~~ equal to the number ~~of times equal to a number~~ of the plurality of ~~at least two~~ transmission antennas, and transmits each of the plurality of training symbol groups only once.

6. (Currently Amended) A method for receiving data from a plurality of transmission antennas ~~performing channel estimation using received sub-carriers~~ in an ~~OFDM (~~Orthogonal Frequency Division Multiplexing (OFDM) system ~~for receiving a first sub-carrier having a training symbol and a second sub-carrier having no training symbol~~, the method comprising the steps of:

receiving a sub-carrier including a training symbol and a sub-carrier including no training symbol;

checking for an inclusion of the training symbol in the received the sub-carriers;

measuring channel estimation errors associated with individual received sub-carriers;

estimating channel according to the measured channel estimation errors; and

receiving data by the estimated channel.

~~a) setting a first weight associated with a reliability of the first sub-carrier and a second weight associated with a reliability of the second sub-carrier, said first weight being different from said second weight;~~

~~b) measuring channel estimation errors associated with individual received sub-carriers; and~~

~~c) performing channel estimation using the measured channel estimation errors and the set weights.~~

7. (Currently Amended) The method ~~as set forth in~~ of claim 6, wherein a ~~the first~~ weight ~~associated with the first~~ of the sub-carrier including the training symbol is greater ~~higher~~ than a ~~the second~~ weight ~~associated with~~ of the ~~second~~ sub-carrier including no training symbol.

8. (Currently Amended) The method ~~as set forth in~~ of claim 6, wherein the measuring step comprises measuring channel estimation errors of ~~channel estimation errors associated with~~ individual sub-carriers that are transmitted from the plurality of ~~at least two~~ transmission antennas ~~are measured~~ when the sub-carriers are received from the plurality of ~~at least two~~ transmission antennas.

9. (Currently Amended) The method ~~as set forth in~~ of claim 6, wherein the measuring step is performed ~~channel estimation errors are measured~~ irrespective of influences of noise occurring individual channels for transmitting the sub-carriers.

10. (Currently Amended) An apparatus for transmitting in an Orthogonal Frequency Division Multiplexing (OFDM) system using ~~grouping a plurality of training symbols into a plurality of training symbol groups to perform channel estimation corresponding to at least two transmission antennas, loading individual training symbols contained in the training symbol groups on sub-carriers, and transmitting the training symbols loaded on the sub-carriers in an OFDM (Orthogonal Frequency Division Multiplexing) system for transmitting data using the at least two~~ transmission antennas, the apparatus comprising:

a distributor for creating a plurality of training symbol groups to perform channel estimation corresponding to the plurality of transmission antennas, by grouping a plurality of training symbols into the plurality of training symbol groups according to the frequency of the training symbols, and transmitting the plurality of training symbol groups through the plurality of

transmission antennas, so that each transmission antenna from among the plurality of transmission antennas transmits all of the plurality of training symbol groups by transmitting each training symbol group only once at predetermined time intervals ~~distributing the received training symbol groups only once using one transmission antenna from among the at least two transmission antennas at predetermined time intervals~~; and

the ~~at least two~~ plurality of transmission antennas for transmitting the training symbol groups received from the distributor.

11. (Currently Amended) The apparatus ~~as set forth in~~ of claim 10, wherein the number of the plurality of training symbol groups is equal to the number of the plurality of transmission antennas, and wherein the ~~plurality of training symbol groups distributed from the~~ distributor allocates the plurality of training symbol groups in a non-overlapping pattern, and ~~are~~ simultaneously ~~transmitted~~ transmits the plurality of training symbol groups through the number of the plurality of transmission antennas ~~to be non-overlapping with each other by the at least two transmission antennas whose number is equal to a number of the training symbol groups~~.

12. (Currently Amended) The apparatus ~~as set forth in~~ of claim 11, wherein the distributor sequentially allocates the plurality of training symbols to the ~~at least two~~ plurality of transmission antennas ~~to create the training symbol groups, and receives the training symbol groups~~.

13. (Currently Amended) The apparatus ~~as set forth in~~ of claim 10, wherein the distributor ~~controls~~ groups the training symbols ~~to receive the training symbol groups~~ into the plurality of training symbol according to

$$x_i^p = \begin{cases} c_i & i=(m-1)N_t+p \\ 0 & otherwise \end{cases}$$

$0 \leq \ p \leq \ N_t - 1, \ 1 \leq \ i \leq N_c N_t$

where x_i^p is a training symbol included in the p[th] training symbol group, N_t is the number of antennas or the number of training symbol groups, c_i is an arbitrary complex of a magnitude $\sqrt{N_t}$, m is an integer lower than N_c, and N_c is the number of training symbols allocated to one transmission antenna.

14. (Currently Amended) The apparatus ~~as set forth in~~ of claim 10, wherein each of the plurality of transmission antennas transmits a specific sub-carrier, the number of sub-carriers being equal to a multiple of the number of the plurality of the transmission antennas, and transmits each of the plurality of training symbol groups only once ~~training symbol allocated only once when transmitting a specific sub-carrier a predetermined number of times equal to the number of the transmission antennas~~.

15. (Currently Amended) An apparatus for receiving data from a plurality of transmission antennas in an Orthogonal Frequency Division Multiplexing (OFDM) system ~~performing channel estimation using received sub-carriers in an OFDM (Orthogonal Frequency Division Multiplexing) system for receiving a first sub-carrier having a training symbol and second sub-carrier having no training symbol~~, the apparatus comprising:

~~at least one~~ a plurality of reception antennas for receiving a sub-carrier including a training symbol and a sub-carrier including no training symbol; and

a channel estimator for checking for an inclusion of the training symbol in the received sub-carriers, and estimating channel according to the measured channel estimation errors ~~the sub-carriers, and transmitting the received sub-carriers; and a channel estimator for setting a first weight associated with a reliability of the first sub-carrier and a second weight associated with a reliability of the second sub-carrier, measuring channel estimation errors associated with individual received sub-carriers, and performing channel estimation using the measured channel estimation errors and the set weights~~.

16. (Currently Amended) The apparatus ~~as set forth in~~ of claim 15, wherein the channel estimator sets a ~~the first~~ weight associated with the sub-carrier including the training symbol ~~with the first sub-carrier to be higher than the second weight associated with the second sub-carrier~~.

17. (Currently Amended) The apparatus ~~as set forth in~~ of claim 15, wherein the channel estimator measures the channel estimation errors ~~associated with the~~ of individual sub-carriers transmitted from ~~at least two~~ the plurality of transmission antennas when the sub-carriers are received from the ~~at least two~~ the plurality of transmission antennas.

18. (Currently Amended) The apparatus ~~as set forth in~~ of claim 15, wherein the channel estimator measures the channel estimation errors irrespective of an influence of noise occurring in individual channels for transmitting the sub-carriers.

19. (New) The apparatus of claim 15, wherein the plurality of reception antennas repetitively receive the sub-carrier at the predetermined time intervals, and wherein the sub-carrier includes all training symbols by transmitting the training symbols only once from each transmission antenna from among the plurality of transmission antennas at the predetermined time intervals.

20. (New) The method of claim 6, wherein the measuring of the channel estimation errors comprises measuring by setting different weight of the sub-carriers according to the inclusion of the training symbol.

21. (New) The method of claim 6, wherein the step of receiving the sub-carrier including the training symbol comprises repetitively receiving the sub-carrier at the predetermined time intervals, and wherein the sub-carrier includes all of the training symbols by transmitting the training symbols only once from each transmission antenna from among the plurality of transmission antennas at the predetermined time intervals.